

Application No: 10/510,177
Attorney's Docket No: BAE 3055

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested in view of the claim amendments and following remarks. Claims 1, 3-5, 9, 11, 12, 18, 19, 23, and 24 have been amended. Claims 6-8, 10, 13, and 25 are cancelled without prejudice or disclaimer of the subject matter presented therein. Claims 26-28 have been added. Currently, claims 1-28 are pending in the present application of which claims 1, 11, and 26 are independent. No new matter has been added.

Claims 1-25 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Komiya (U.S. Patent Number 4,798,397) in view of Layman (U.S. Patent Number 1,380,659), both of record. Claims 1-25 were rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Seksaria (U.S. Patent Application Number 2004/0075234A1) in view of Layman (U.S. Patent Number 1,380,659), both of record. The above rejections are respectfully traversed for at least the reasons set forth below. Claims 21, 23, and 25 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner argues that there is insufficient antecedent basis for the phrase "fully returned flanges." Claims 8-10 were objected to on the ground that characterization of a welded joint as "high quality" is indefinite.

Claim Rejection Under 35 U.S.C. §112

Claims 21, 23, and 25 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, Claims 21, 23, and 25 were

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rejected because it allegedly included a phrase with insufficient antecedent basis. Claim 3 has been amended to depend from claim 2 rather than claim 1, thereby providing antecedent basis for Claim 21. Claim 5 has been amended to depend from Claim 28, thereby providing antecedent basis for Claim 23. The cancellation of Claim 25 renders this rejection moot. The Examiner is therefore respectfully requested to withdraw the rejection of Claims 21 and 23.

Claims 8-10 were objected to on the ground that characterization of a welded joint as "high quality" is indefinite. The phrase "high quality" has been deleted from Claim 9. The cancellation of Claims 8 and 10 renders this rejection moot. The Examiner is therefore respectfully requested to withdraw the rejection of Claim 9.

Claim Rejection Under 35 U.S.C. §103

Claim 1 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Komiya or Seksaria in view of Layman. This rejection is respectfully traversed because Komiya, Seksariya, and Layman, considered singly or in combination, fail to teach or suggest the claimed invention as set forth in amended claim 8 and its dependents.

Komiya discloses a vehicular suspension arm having a metal component with a structural I-beam section. As noted by the Examiner, Komiya fails to disclose a vehicular suspension arm formed from stamped components.

Seksaria discloses a vehicular suspension arm having an aluminum metal component with a structural I-beam section. As noted by the Examiner, Seksaria fails to disclose a vehicular suspension arm formed from stamped components.

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Layman discloses a general link or lever or the like, and is not related to automobile suspensions. Layman describes a general approach and illustrates approximately 10 different cross sections with no specific description or teaching of a stamping approach or of a joining method. No joint detail is provided. The illustrations of Layman illustrate the range of shapes that might be able to be constructed using his stamped approach. There is no indication that any of these various shapes were actually constructed.

Claim 1, as amended, recites a vehicular suspension arm, comprising an upper sheet metal stamped component with a first outer face and a first inner face, and comprising a first central web portion with two opposite sides and first upstanding flange portions at said opposite sides of said first web portion; and a lower sheet metal stamped component with a second outer face and a second inner face, and comprising a second central web portion with two opposite sides and second upstanding flange portions at said opposite sides of said second web portion. The upper stamped component and lower stamped component are configured when placed into contact along said first and second inner faces to create a "gap" along a peripheral, joining edge. This gap facilitates a high quality welded joint which combines both butt and fillet configurations to join four material surfaces of the upper and lower components, and said upper and lower components are rigidly attached to each other by means of said welded joint.

The Official Action asserts that Komiya and Seksaria each disclose all the elements of claim 1 except for formation of the I-beam from stamped components. The Official Action asserts that Layman teaches a link formed from stamped components. However, the Applicants submit that neither Komiya, Seksaria nor Layman teaches or suggests a welded joint which

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combines both butt and fillet configurations to join four material surfaces. Komiya and Seksaria fail to disclose welding to create an I-beam since the I-beam disclosed therein is a single solid structural element. Layman fails to teach a welded joint which combines both butt and fillet configurations to join four material surfaces of the upper and lower components; the method taught by Layman uses welding, particularly spot welding, in conjunction with brazing (See page 1, lines 49-51, 105-108). Spot welding produces a weld joining the faces of two surfaces at one point, rather than a weld along edge surfaces. Layman neither teaches or suggests a welded joint which combines both butt and fillet configurations, or a method of making the same.

Additionally, Layman fails to teach a vehicular suspension arm including an upper sheet metal stamped component and a lower sheet metal stamped component, as specified in Claim 1 of the current application. Layman instead discloses a general link or lever or the like, and does not relate his link or lever or the like to automobile suspensions. In 1921, when the patent issued, complex stampings were not common and such a link or lever component would normally have been manufactured using casting or forging. Layman describes a general approach and illustrates approximately 10 different cross sections with no specific description or teaching of a stamping approach or of a joining method. The illustrations of Layman illustrate the range of shapes that might be able to be constructed using his stamped approach. There is no indication that any of these various shapes were actually constructed.

The Examiner cites Fig. 16; however, Fig. 16 only shows a cross section at one point along the length of an element. It is additionally not clear how the element of Fig. 16 of Layman is constructed in the absence of further details. Layman states: "In Figure 1 and 2, the lever

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shown is formed from two similar longitudinal abutting body sections 20,....". The Examiner's citation, however, relates to Figure 16 rather than to Figures 1 and 2 of Layman. Figures 8 through 17, comprising various forms of shanks, are not generally constructed from two components: Figs. 10 and 11 have 3 components; Fig. 14 has 4 components; etc.

Specifically, in Fig. 16, it is NOT clear how many pieces are used to construct this section. Moreover, there is no indication whatsoever as to how the piece or pieces would be connected or where the joints would occur. There is no description of Fig. 16 in the disclosure or the claims. It is merely a completely ambiguous, orphan illustration. Although the description vaguely refers to spot welding, there is no indication or suggestion as to a "gap" such as found in the structure of the instant invention, which facilitates a welded joint which combines both butt and fillet configurations, as recited in claim 1 of the current application. The lack of such teachings is particularly important since Fig. 16 is the *only* part of Layman which even suggests an I-beam structure; however, this purported I-beam is only illustrated as a cross section at a single point along its length. In the absence of further details, it is impossible to tell if Fig. 16 is a complete description of the article, or if the article may in fact have a different configuration at a different point along its length. In summary, Figure 16 of Layman is merely a general indication of a possible structure; it is not an enabling disclosure since it fails to disclose a complete structure; and discloses no approach directed to manufacture of a suspension arm, illustrates no joint and discloses no joining approach.

The Examiner asserts that Layman teaches a link formed from two stamped components. However, the Applicant submits that Layman fails to teach or suggest a vehicle suspension arm

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formed from stamped components. Layman discloses an undefined link, lever and the like. Layman provides no teaching or suggestion that his stamped lever could be used to replace an I-beam in a suspension system.

Layman fails to provide any teaching that the disclosed element may be used in a vehicular suspension system. Rather, the only specifically disclosed use for this element in Layman is as a lever on a brake rocker shaft in an automobile (Page 1, lines 24-26); *i.e.*, a rocker arm. The suspension system is required to be strong in order to support the mass of the vehicle. It would not have been obvious to one of ordinary skill in the art that an element with a weak brazed bond designed for use as a rocker arm would have sufficient strength to support the weight of the vehicle.

Although they disclose vehicular suspension arms, neither Komiya nor Seksaria provides any teaching or suggestion that a vehicular suspension arm having a metal component with a structural I-beam section may be formed from stamped members.

Accordingly, there is no motivation within the cited references that would lead one of ordinary skill in the art to combine the references in the manner suggested by the examiner so as to obtain a vehicle suspension arm formed from stamped metal components, as recited in Claim 1.

At least by virtue of Komiya's, Seksaria's and Layman's failure to teach or suggest the above identified element of claim 1, a *prima facie* case of obviousness has not been established under 35 U.S.C. § 103. Accordingly, the Examiner is respectfully requested to withdraw the

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rejection of claim 1. Claims 2, 3, 14, 15, 16, 20, and 21 depend, directly or indirectly, from allowable claim 1 and are also allowable over either Komiya or Seksaria in view of Layman at least by virtue of their dependencies.

Claim 11 was rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Komiya or Seksaria in view of Layman. This rejection is respectfully traversed because Komiya and Layman, considered singly or in combination, fail to teach or suggest the claimed invention as set forth in amended claim 1 and its dependents.

Komiya discloses a vehicular suspension arm having a metal component with a structural I-beam section. As noted by the Examiner, Komiya fails to disclose a vehicular suspension arm formed from stamped components.

Seksaria discloses a vehicular suspension arm having an aluminum metal component with a structural I-beam section. As noted by the Examiner, Seksaria fails to disclose a vehicular suspension arm formed from stamped components.

Layman discloses a general link or lever or the like, and is not related to automobile suspensions. Layman describes a general approach and illustrates approximately 10 different cross sections with no specific description or teaching of a stamping approach or of a joining method. No joint detail is provided. The illustrations of Layman illustrate the range of shapes that might be able to be constructed using his stamped approach. There is no indication that any of these various shapes were actually constructed.

Claim 11, as amended, recites a vehicular suspension arm, comprising an upper sheet metal stamped component with a first outer face and a first inner face, and comprising a first

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central web portion with two opposite sides and first upstanding flange portions at said opposite sides of said first web portion; and a lower sheet metal stamped component with a second outer face and a second inner face, and comprising a second central web portion with two opposite sides and second upstanding flange portions at said opposite sides of said second web portion. The upper stamped component and lower stamped component are rigidly attached to each other along said first and second inner faces in a back-to-back configuration using projection welding across the respective first and second web portions.

The Official Action asserts that Komiya and Seksaria each disclose all the elements of claim 11 except for formation of the I-beam from stamped components. The Official Action asserts that Layman teaches a link formed from two stamped components. However, the Applicants submit that neither Komiya, Seksaria nor Layman teaches or suggests projection welding to attach the stamped components. Projection welding is a resistance welding process which produces coalescence of metals with the heat obtained from resistance to electrical current through the work parts, where the work parts are held together under pressure by electrodes. Projections are designed in one part in projection welding. These act as current concentrators for the welding process. Projection welding rigidly attaches components to each other in a face-to-face configuration. Komiya and Seksaria fail to disclose projection welding since the I-beams disclosed therein are a single solid structural element. Layman teaches away from use of projection welding to firmly bond two parts to form an I-beam; the method taught by Layman uses welding, particularly spot welding, in conjunction with brazing (See page 1, lines 49-51, 105-108):

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In practice I prefer to spot-weld these parts to hold them together, and then to braze them, preferably by immersion in the spelter.

Layman, page 1, lines 105-108.

Spot welding only produces a single weld at a time, in contrast to projection welding, which allows production of several welds produced simultaneously, the number of welds depending on the number of projections in the component. The current process allows formation of a firm bond using a single welding step, without requiring a subsequent brazing step. Additionally, brazing, as taught by Layman, is substantially weaker than projection welding, as described in the current application. This is because welding is done by melting the workpieces and adding a filler material to form a pool of molten material (the weld puddle) that cools to become a strong joint. Brazing, on the other hand, involves melting a lower-melting-point material between the workpieces to form a bond between them, without melting the workpieces. Common brazings are weaker than the materials they join.

Additionally, Layman fails to teach a vehicular suspension arm including an upper sheet metal stamped component and a lower sheet metal stamped component, as specified in Claim 11 of the current application. As noted above with regard to Claim 1, Layman discloses an undefined link, lever and the like, and is not related to automobile suspensions. As previously noted with regard to Claim 1, Layman describes a general approach and illustrates approximately 10 different cross sections with no specific description or teaching of a stamping approach or of a joining method. No joint detail is provided.

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The Examiner asserts that Layman teaches a link formed from two stamped components. However, the Applicant submits that Layman fails to teach or suggest a vehicle suspension arm formed from stamped components. Layman discloses an undefined link, lever and the like. Layman provides no teaching or suggestion that his stamped lever could be used to replace an I-beam in a suspension system.

Although they disclose vehicular suspension arms, neither Komiya nor Seksaria provides any teaching or suggestion that a vehicular suspension arm having a metal component with a structural I-beam section may be formed from stamped members, and hence fail to make up for the deficiency in Layman.

Layman fails to provide any teaching that the disclosed element may be used in a vehicular suspension system. Rather, the only specifically disclosed use for this element in Layman is as a lever on a brake rocker shaft in an automobile (Page 1, lines 24-26); *i.e.*, a rocker arm. The suspension system is required to be strong in order to support the mass of the vehicle. It would not have been obvious to one of ordinary skill in the art that an element with a weak brazed bond designed for use as a rocker arm would have sufficient strength to support the weight of the vehicle.

The Examiner cites Fig. 16; however, Fig. 16 only shows a cross section at one point along the length of an element. It is additionally not clear how the element of Fig. 16, as cited by the Examiner, of Layman is constructed in the absence of further details. Layman states: "In Figure 1 and 2, the lever shown is formed from two similar longitudinal abutting body sections

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20,...". The Examiner's citation, however, relates to Figure 16 rather than to Figures 1 and 2 of Layman. Figures 8 through 17, comprising various forms of shanks, are not generally constructed from two components: Figs. 10 and 11 have 3 components; Fig. 14 has 4 components; etc.

Specifically, in Fig. 16, it is NOT clear how many pieces are used to construct this section. Moreover, there is no indication whatsoever as to how the piece or pieces would be connected or where the joints would occur. Although the description vaguely refers to spot welding, there is no indication or suggestion to construct such an element through projection welding, as recited in claim 11 of the current application. There is no description of Fig. 16 in the disclosure or the claims of Layman. It is merely a completely ambiguous, orphan illustration. The lack of such teachings is particularly important since Fig. 16 is the *only* part of Layman which even suggests an I-beam structure; however, this purported I-beam is only illustrated as a cross section at a single point along its length. In the absence of further details, it is impossible to tell if Fig. 16 is a complete description of the article, or if the article may in fact have a different configuration at a different point along its length.

Although they disclose vehicular suspension arms, neither Komiya nor Seksaria provides any teaching or suggestion that a vehicular suspension arm having a metal component with a structural I-beam section may be formed from stamped members, and hence they fail to make up for the deficiency in Layman.

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Accordingly, there is no motivation within the cited references that would lead one of ordinary skill in the art to combine the references in the manner suggested by the examiner so as to obtain a vehicle suspension arm formed from stamped metal components, as recited in Claim 11.

At least by virtue of Komiya's, Seksariya's, and Layman's failure to teach or suggest the above identified elements of claim 11, a *prima facie* case of obviousness has not been established under 35 U.S.C. § 103. Accordingly, the Examiner is respectfully requested to withdraw the rejection of claim 11. Claims 4, 17, 22, and 24, as well as newly presented claim 27, depend, directly or indirectly, from allowable claim 11 and are also allowable over Komiya or Seksaria in view of Layman at least by virtue of their dependencies.

Newly Presented Claim

Claim 26 has been added. This claim is believed to be allowable over the prior art of record, Komiya and Layman, for at least the following reasons.

Komiya discloses a vehicular suspension arm having a metal component with a structural I-beam section. As noted by the Examiner, Komiya fails to disclose a vehicular suspension arm formed from stamped components.

Seksaria discloses a vehicular suspension arm having an aluminum metal component with a structural I-beam section. As noted by the Examiner, Seksaria fails to disclose a vehicular suspension arm formed from stamped components.

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Layman discloses a general link, lever, or the like; the only specifically disclosed use is as a brake rocker shaft formed from sheet metal components having flanges. A rocker shaft is used to rock camshafts in an engine.

Claim 26 is directed to a suspension system, comprising a vehicular suspension arm including an upper sheet metal stamped component and a lower sheet metal stamped component. Layman, Komiya, and Seksaria each fail to provide any motivation to substitute a brake rocker shaft from an engine, as taught by Layman, for a solid I-beam in a suspension arm, as taught by Komiya and Seksaria. As noted above, the suspension system is required to be strong in order to support the mass of the vehicle. It would not have been obvious to one of ordinary skill in the art that a rocker arm design formed from stamped components would have sufficient strength to support the weight of the vehicle. Komiya and Seksaria each show suspension arms formed from solid I-beams, but fail to provide any teaching or suggestion that a substitution of the sheet metal construction of Layman for their suspension arms would be effective.

Moreover, Layman discloses elements made from stamped components, there is no indication whatsoever as to how the piece or pieces would be connected or where the joints would occur. Fig. 16 is the *only* part of Layman which even suggests an I-beam structure. There is no description of Fig. 16 in the disclosure or the claims of Layman. It is merely a completely ambiguous, orphan illustration. Furthermore, this purported I-beam is only illustrated as a cross section at a single point along its length. In the absence of further details, it is impossible to tell if Fig. 16 is a complete description of the article, or if the article may in fact have a different configuration at a different point along its length.

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Accordingly, the Examiner is respectfully requested to allow claim 26. Claims 5, 9, 12, 19, 23, and newly presented claim 28 depend from allowable claim 26 and are also allowable over Komiya in view of Layman at least by virtue of their dependencies.

Newly presented claim 27 is believed to be allowable for reasons which have already been addressed.

CONCLUSION

While we believe that the instant amendment places the application in condition for allowance, should the Examiner have any further comments or suggestions, it is respectfully requested that the Examiner telephone the undersigned attorney in order to expeditiously resolve any outstanding issues.

In the event that the fees submitted prove to be insufficient in connection with the filing of this paper, please charge our Deposit Account Number 50-0578 and please credit any excess fees to such Deposit Account.

Respectfully submitted,
KRAMER & AMADO, P.C.



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